2 Introduction

Information networks straddle the world. Nothing remains concealed. But the sheer volume of information dissolves the information. We are unable to take it all in.
—Günter Grass, German novelist and Nobel Prize winner

Anecdote, instinct, or analysis: How does higher education really decide? Higher education is dedicated to fact-based scientific discovery. But does higher education leadership use this same penchant for analysis to make institutional decisions? Insiders often ridicule higher education's inability to make decisions with statements like "a 10-to-1 vote is a tie" or "any decision worth making is worth making twice." But is higher education really devoid of evidence-based decision making?

Decision Making: Instinct Versus Analysis

If higher education managers do rely more on instinct than analysis, this does not make them unique. A May 2002 study by the executive search firm Christian and Timbers found that 45 percent of corporate executives rely more on instinct than data in running their business (Bonabeau, 2003). So, decisions based on intuition and anecdote are not a tendency peculiar to managing in higher education. Rather, they are human nature. In a *Harvard Business Review* article, strategy consultant Eric Bonabeau observed that individuals tend to rely more on instinct as the number of options and the amount of data increase. It becomes almost a defense mechanism to avoid becoming overwhelmed. Kati Weingartner, director of information technology at Arizona State University–Polytechnic, believes that higher education decision makers face the same conundrum as their corporate counterparts. According to Weingartner, the challenge is that "the more data people have to support their thinking, the more things they have to think about."

While deciding by instinct may be a normal human tendency, Bonabeau argues that it is fraught with risk. He argues that intuitive decision makers see old patterns in new problems and miss opportunities to develop new insights and solutions. In addition, intuitive decision makers tend not to explore many alternatives. Finally, intuitive decision making also leads to group thinking in which no one wants to counter the boss's intuition despite the facts. Instead, Bonabeau urges decision makers to use "information technology to help overcome limitations of time and our inherent mental capacity to effectively analyze complex situations" (Bonabeau, 2003, p. 2).

Quest for Information

Institutions, like many corporations, seem to exist at two extremes: Either they are drowning in data that cannot be turned into meaningful information, or they capture information that they cannot extract from their

information systems in a timely manner to support decision making. Neither is a satisfactory place to be. For more than a decade, higher education has pursued administrative technology investments in part to improve the availability and utility of management information. The early promise of many ERP implementations was that they would make access to information fundamentally easier. As institutions began to implement ERP, their objectives shifted to more practical matters. ECAR found in its 2002 study of higher education enterprise systems that only 4 percent of institutions surveyed identified providing better management tools "as the single most important reason they implemented an ERP." The most frequently cited reason (42 percent of respondents) was to replace an aging legacy system (Kvavik & Katz, 2002, p. 36).

Either the goal of transforming management took a back seat to more practical needs, or ERP systems alone could deliver the information institutions needed. Dan Updegrove, vice president of information technology at The University of Texas at Austin, believes the latter. According to Updegrove, "Many institutions have spent significant amounts of money in hopes of improving information for planning and management. What they got was new and different transaction processing systems. The data, the user interfaces—and the users—of correct, fast, auditable transaction processing are fundamentally different from those of planning and management tools."

Higher education has continued to pursue the goal of improved management information through other technologies as well. As this study confirms, many institutions implemented data marts or data warehouses along with or in advance of replacing their transaction systems. Still others have followed on their ERP projects with new initiatives to implement better reporting and analysis tools. However, satisfaction still seems elusive. An ECAR study published earlier this year, *Good Enough! IT Investment and Business Process Performance,* looks at institutional satisfaction with the performance of major administrative processes supported by technology, including reporting. That study concludes that institutions are most satisfied with their transaction processes and least satisfied with processes related to management information and analysis. Management reporting (for example, to analyze the sources and uses of funds) along with grants management processes had the lowest mean satisfaction levels in the entire study (Kvavik, Goldstein, & Voloudakis, 2005, p. 13).

While satisfaction with the quality of management information appears low, demand, or the perception of demand, is high. Institutions face increasingly demanding external reporting requirements. In a post-Enron world, boards, state higher education commissions, and system offices are asking for more extensive information on a more frequent basis. Accreditation bodies are shifting emphasis to measures of institutional outcome, with evaluations focusing increasingly on how institutions measure everything from student learning to the implementation of the institutional strategic plan. So, the importance of metrics, data, and analysis seems on the rise. The quest to improve the campus IT infrastructure to respond to this demand continues. Administrative/ERP information systems remained the third most significant issue identified by CIOs in the 2005 EDUCAUSE survey of current issues (Maltz & DeBlois, 2005). It has occupied this position for the last three consecutive years.

Clearly, some institutions are succeeding. The University of Connecticut is harvesting student information and course management system data to build easy-to-use predictive models of student success in courses. The

University of California at San Diego has developed a set of dashboards to provide managers with immediate access to relevant management data and analytical tools. Baylor University has built a financial data warehouse. The University of Minnesota has been recognized by ComputerWorld.com as a business intelligence best practices finalist. These are only a few examples of how institutions are leveraging data to change how they manage and operate the institution.

Study Objectives

The intent of this study is to understand the current state of technology deployment and use in support of reporting, analysis, and decision making in higher education. Throughout this document we use the term *academic analytics* to refer to numerous activities institutions employ to use data to manage the enterprise. We present a compete discussion of terminology in Chapter 3.

In undertaking this study, we sought to meet several objectives. First, we wanted to know what technologies institutions employed to support academic analytics. Second, we wanted to understand who the most active users of data and analytical capabilities were within an institution and what they used them for. Third, we wanted to identify institutions that used their analytical capacity in advanced ways, such as to build predictive models or test scenarios, or had integrated data and analysis into their business processes (for example, automated alerts). Finally, we sought to assess whether institutions that have more fully embraced the use of information and analytics achieved better outcomes.

Additional research questions that this study explores include:

- How does an institution's choice of technology affect the results they achieve with academic analytics?
- How does the institutional environment and management culture impact the ability to implement academic analytics?
- How do the intensity and nature of use of academic analytics vary by functional area?
- What are institutions' plans for expanding their reporting and analytical capabilities?
- What are the drivers for expansion, and how do they vary by institution?
- Does wide dispersion of information and analytical tools change the way managers make decisions?
- Does making information more widely available within an institution create any unintended negative consequences?

These are just some of the questions this analysis seeks to address. In the coming chapters, we present an overview of the use of academic analytics today, review the technology landscape, discuss how institutions have deployed their analytical capability, and examine some of the advanced uses of academic analytics. In the concluding chapters, we look at the outcomes institutions realize from their analytical capabilities and applications and discuss how the use of information and analytical tools may change in the future.